State/Industry Network

Air Quality Report

4th Quarter 1999

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North Dakota Department of Health

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SECTION ONE

DISCUSSION OF

MONITORING RESULTS

Sulfur Dioxide (SO_2)

There were no exceedances of either the state or federal standards during the quarter. The maximum 1-hour concentration was 144 ppb on December 26 at Mandan - SPM; the maximum 3-hour concentration was 97 ppb on December 23 at Mandan - SPM; and, the maximum 24-hour concentration was 25 ppb on December 23 at Mandan - SPM. All sites achieved at least an 80% data recovery for the period operated.

Sulfur Dioxide (SO_2) 5-Minute Average

The maximum 5-minute concentration was 422 ppb on October 6 at Bear Paw - MGP #5.

Hydrogen Sulfide (H_2S)

There were no exceedances of the H_2S standards during the quarter. The maximum 1-hour concentration was 101 ppb on December 2 at Amerada Hess - Tioga #2; the maximum 24-hour concentration was 8 ppb on October 23 at Amerada Hess - Tioga #2; the maximum 3-month concentration was 2 ppb in October at Amerada Hess - Tioga #2. The site achieved at least an 80% data recovery for the period operated.

The H_2S monitoring was terminated at Amerada Hess - Tioga #2 effective December 31.

Ozone (O_3)

There was no exceedance of the ozone standard during the quarter. The maximum observed 1-hour concentration was 48 ppb on October 24 at TRNP - SU (Painted Canyon). The maximum 8-hour concentration was 44 ppb on October 24 at TRNP - SU (Painted Canyon). All sites achieved at least an 80% data recovery for the period operated.

Nitrogen Dioxide (NO_2)

The maximum 1-hour concentration observed was 108 ppb on November 1 at DGC #12. All sites achieved at least an 80% data recovery for the period operated except Sharon.

Sharon failed 80% data recovery due to ***.

Inhalable FRM $PM_{2.5}$ Particulates

The maximum 24-hour average concentration was 27.4 µg/m^3 on November 11 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated.

Inhalable non-FRM $PM_{2.5}$ Particulates

The maximum 24-hour average concentration was 20.4 µg/m^3 on November 8 at Dickinson Residential. All sites achieved at least an 80% data recovery for the period operated.

The Bismarck - Residential was terminated effective October 1 and Dickinson Residential was terminated effective December 31.

Inhalable PM_{10} Particulates

There was no exceedance of the 24-hour standard during the quarter. The maximum 24-hour average concentration was 70.8 µg/m^3 on November 2 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated.

Inhalable $PM_{2.5}$ Sulfates (SO_4)

The purpose for sulfate analysis is to aid the Department in assessing the impact of SO_2 emissions on inhalable particulate concentrations and visibility. The maximum 24-hour $PM_{2.5}$ sulfate concentration was 0.7 µg/m^3 on November 8 at Dickinson Residential.

The Bismarck - Residential was terminated effective October 1 and Dickinson Residential was terminated effective December 31.

Inhalable PM_{10} Sulfates (SO_4)

The purpose for sulfate analysis is to aid the Department in assessing the impact of SO_2 emissions on inhalable particulate concentrations and visibility. The maximum 24-hour PM_{10} sulfate concentration was 1.9 µg/m^3 on December 2 at Fargo NW. All sites achieved at least an 80% data recovery for the period operated.

$PM_{2.5}$ Sulfate /$PM_{2.5}$ Analysis

The $PM_{2.5}$ sulfate/$PM_{2.5}$ total mass tables present statistics for $PM_{2.5}$ sulfate and $PM_{2.5}$ total mass when both concentrations are greater than the respective minimum detectable concentration: 0.5 µg/m^3 for $PM_{2.5}$ sulfate analysis; 4 µg/m^3 for $PM_{2.5}$ total mass. Statistics for the ratio are produced by evaluating the ratio of the $PM_{2.5}$ sulfate concentration to the $PM_{2.5}$ total mass concentration for each data pair. In the individual summaries, one-half of the minimum detectable concentration is substituted for those concentrations less than the minimum detectable value. However, when the $PM_{2.5}$ total mass concentration is less than 4 µg/m^3, the $PM_{2.5}$ sulfate concentration can be higher than the $PM_{2.5}$ total mass concentration. This is because of the variability in the sulfate analysis procedure at low concentrations. Therefore, when calculating the ratio of $PM_{2.5}$ sulfate concentration to $PM_{2.5}$ total mass concentration, only data pairs where both the $PM_{2.5}$ sulfate and $PM_{2.5}$ total mass concentrations are greater than the minimum detectable concentrations are used. When the ratio is multiplied by 100, it becomes the percentage of total mass which is sulfate. The maximum $PM_{2.5}$ Sulfate/$PM_{2.5}$ total mass ratio was 0.125 (12.5%) on October 3 at Dickinson Residential. The maximum average ratio was 0.080 (8.0%) at Dickinson Residential.

PM_{10} Sulfate/PM_{10} Analysis

The PM_{10} sulfate/PM_{10} total mass tables present statistics for PM_{10} sulfate and PM_{10} total mass when both concentrations are greater than the respective minimum detectable concentration: 0.5 µg/m^3 for PM_{10} sulfate analysis; 4 µg/m^3 for PM_{10} total mass. Statistics for the ratio are produced by evaluating the ratio of the PM_{10} sulfate concentration to the PM_{10} total mass concentration for each data pair. In the individual summaries, one-half of the minimum detectable concentration is substituted for those concentrations less than the minimum detectable value. However, when the PM_{10} total mass concentration is less than 4 µg/m^3, the PM_{10} sulfate concentration can be higher than the PM_{10} total mass concentration. This is because of the variability in the sulfate analysis procedure at low concentrations. Therefore, when calculating the ratio of PM_{10} sulfate concentration to PM_{10} total mass concentration, only data pairs where both the PM_{10} sulfate and PM_{10} total mass concentrations are greater than the minimum detectable concentrations are used. When the ratio is multiplied by 100, it becomes the percentage of total mass which is sulfate. The maximum PM_{10} Sulfate/PM_{10} total mass ratio was 0.154 (15.4%) on October 3 at Short Creek - SPM The maximum average ratio was 0.049 (4.9%) at Short Creek - SPM.

SECTION TWO

AMBIENT AIR QUALITY DATA

SUMMARIES

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MAXIMA 1 - HOUR 1ST MM/DD/HH	1 - HOUR 2ND MM/DD/HH	3 - HOUR 1ST MM/DD/HH	3 - HOUR 2ND MM/DD/HH	24 - HOUR 1ST MM/DD	24 - HOUR 2ND MM/DD	ARITH MEAN	1HR #>273	24HR #>99	% >MDV
Amerada Hess - Tioga #1	1999	OCT-DEC	2190	35 10/30/23	29 11/04/05	15 10/30/23	13 12/16/05	5 10/31	4 12/16	1.5			10.1
Amerada Hess - Tioga #3	1999	OCT-DEC	2187	49 12/25/21	46 10/18/11	39 11/13/08	38 10/18/17	16 10/18	13 11/13	2.1			15.3
Bear Paw - MGP #3	1999	OCT-DEC	2190	8 10/05/17	8 11/15/10	4 10/05/17	4 12/31/17	2 10/05	2 12/31	1.1			7.0
Bear Paw - MGP #5	1999	OCT-DEC	2193	134 10/06/06	16 12/09/11	49 10/06/08	8 12/09/11	8 10/06	3 12/16	1.3			7.4
Beulah - North	1999	OCT-DEC	2195	54 10/05/12	20 10/05/13	25 10/05/14	16 11/13/14	5 10/05	5 11/13	1.6			16.2
DGC #12	1999	OCT-DEC	2194	48 11/05/12	41 12/19/17	31 12/19/17	23 10/05/14	10 12/19	9 11/01	2.5			46.5
DGC #14	1999	OCT-DEC	2175	42 11/24/02	42 12/11/11	24 11/24/02	22 12/11/14	7 11/24	7 12/11	2.2			36.7
DGC #16	1999	OCT-DEC	2189	25 12/21/07	22 11/05/13	17 11/05/14	16 12/21/08	6 10/21	5 12/16	2.0			29.6
DGC #17	1999	OCT-DEC	2165	46 12/16/12	42 12/16/11	29 12/16/14	28 12/16/11	10 12/16	6 10/05	1.7			23.2
Dunn Center	1999	OCT-DEC	2196	32 12/16/00	17 10/05/14	19 12/16/02	15 12/15/23	5 12/16	4 12/15	1.3			13.7
Fargo NW	1999	OCT-DEC	2068	6 12/05/20	5 11/17/18	4 11/17/20	3 12/07/14	2 11/16	2 11/30	1.1			6.9
Hannover	1999	OCT-DEC	2191	139 11/15/12	68 11/15/13	74 11/15/14	35 10/05/08	13 11/15	10 12/02	2.1			24.9
Mandan - SPM	1999	OCT-DEC	2194	144 12/26/20	125 12/03/23	97 12/23/17	91 12/04/02	25 12/23	24 12/26	6.8			51.1
Mandan NW - SPM	1999	OCT-DEC	2193	83 12/02/15	69 12/02/14	40 12/02/17	39 11/16/11	12 12/02	10 12/12	3.2			36.9

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MAXIMA 1 - HOUR 1ST MM/DD/HH	1 - HOUR 2ND MM/DD/HH	3 - HOUR 1ST MM/DD/HH	3 - HOUR 2ND MM/DD/HH	24 - HOUR 1ST MM/DD	24 - HOUR 2ND MM/DD	ARITH MEAN	1HR #>273	24HR #>99	% >MDV
Sharon	1999	OCT-DEC	2195	4 10/30/13	4 11/07/17	3 10/30/14	2 12/22/17	1 10/01	1 12/31	1.0			1.1
Short Creek - SPM	1999	OCT-DEC	2186	52 10/25/10	47 12/27/22	29 12/27/23	28 10/24/23	6 10/22	6 10/25	2.1			19.8
TRNP - SU (Painted Canyon)	1999	OCT-DEC	2193	9 11/17/04	8 12/15/18	7 12/15/20	5 12/15/23	2 10/06	2 12/15	1.1			6.5
White Shield	1999	OCT-DEC	2193	61 12/16/03	23 12/16/22	23 12/16/05	13 12/16/23	10 12/16	3 10/06	1.3			7.2

The maximum 1-hour concentration is 144 ppb at Mandan - SPM on 12/26/20
The maximum 3-hour concentration is 97 ppb at Mandan - SPM on 12/23/17
the maximum 24-hour concentration is 25 ppb at Mandan - SPM on 12/23

* The air quality standards are:
STATE Standards -
1) 273 ppb maximum 1-hour average concentration.
2) 99 ppb maximum 24-hour average concentration.
3) 23 ppb maximum annual arithmetic mean concentration.

FEDERAL Standards -
1) 500 ppb maximum 3-hour concentration not to be exceeded more than once per year.
2) 140 ppb maximum 24-hour concentration not to be exceeded more than once per year.
3) 30 ppb annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Sulfur Dioxide 5-Minute Averages (ppb)

LOCATION	YEAR	PERIOD	OBS	5-MINUTE MAXIMA 1ST	DATE MM/DD/HH	2ND	DATE MM/DD/HH	3RD	DATE MM/DD/HH	# HOURS >600	% >MDV
Bear Paw - MGP #3	1999	OCT-DEC	2190	25	10/16/03	23	12/16/14	20	12/13/13	0	13.6
Bear Paw - MGP #5	1999	OCT-DEC	2193	422	10/06/06	33	10/06/09	29	11/15/11	0	16.1
Beulah - North	1999	OCT-DEC	2195	73	10/05/12	60	10/05/13	55	10/05/11	0	24.7
Dunn Center	1999	OCT-DEC	2196	40	12/16/00	32	10/16/14	31	12/15/22	0	27.2
Fargo NW	1999	OCT-DEC	2068	6	12/05/20	5	11/05/18	4	10/26/06	0	6.9
Hannover	1999	OCT-DEC	2191	207	10/05/07	196	11/05/12	186	11/15/13	0	36.9
Mandan - SPM	1999	OCT-DEC	2194	179	12/23/17	175	12/23/14	171	12/28/02	0	65.0
Mandan NW - SPM	1999	OCT-DEC	2193	378	11/15/12	232	11/15/13	167	11/10/12	0	45.5
Sharon	1999	OCT-DEC	2195	4	10/30/13	4	11/30/17	3	10/30/14	0	1.1
Short Creek - SPM	1999	OCT-DEC	2186	77	11/08/14	75	11/08/05	69	12/27/22	0	28.9
TRNP - SU (Painted Canyon)	1999	OCT-DEC	2193	9	11/17/04	8	12/17/18	8	12/15/19	0	6.5

The maximum 5-minute concentration is 422 ppb at Bear Paw - MGP #5 on 10/06/06

* No Standard is currently in effect:

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Hydrogen Sulfide (ppb)

				M A X I M A									
				1 - HOUR		24 - HOUR		3 - MONTH					
LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	1ST MM/DD/HH	2ND MM/DD/HH	1ST MM/DD	2ND MM/DD	1ST MM	2ND MM	ARITH MEAN	1HR #>200	24HR #>100	% >MDV
Amerada Hess - Tioga #2	1999	OCT-DEC	2176	101 12/02/20	64 10/23/13	8 10/23	7 12/02	2 10	2 12	1.9			17.8

The maximum 1-hour concentration is 101 ppb at Amerada Hess - Tioga #2 on 12/02/20
the maximum 24-hour concentration is 8 ppb at Amerada Hess - Tioga #2 on 10/23
The maximum 3-month concentration is 2 ppb at Amerada Hess - Tioga #2 on 10

* The State air quality standards are:
1) 10 ppm maximum instantaneous (ceiling) concentration not to be exceeded.
2) 200 ppb maximum 1-hour average concentration not to be exceeded more than once per month.
3) 100 ppb maximum 24-hour average concentration not to be exceeded more than once per year.
4) 20 ppb maximum arithmetic mean concentration averaged over three consecutive months.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Ozone (PPB)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MAXIMA 1-HOUR 1ST MM/DD/HH	MAXIMA 1-HOUR 2ND MM/DD/HH	MAXIMA 1-HOUR 3RD MM/DD/HH	MAXIMA 8-HOUR 1ST MM/DD/HH	MAXIMA 8-HOUR 2ND MM/DD/HH	MAXIMA 8-HOUR 3RD MM/DD/HH	1HR #>120	8HR #>80
Beulah - North	1999	OCT-DEC	2194	43 10/31/20	41 11/04/15	40 11/04/13	38 11/04/11	36 11/04/12	36 11/04/10		
Dunn Center	1999	OCT-DEC	2196	47 11/04/13	45 10/31/19	44 11/04/12	42 11/04/11	40 11/04/10	40 11/04/12		
Fargo NW	1999	OCT-DEC	2069	45 10/08/14	45 10/08/15	44 10/08/13	39 10/08/10	36 10/10/09	36 10/08/09		
Hannover	1999	OCT-DEC	2195	44 11/04/14	44 11/04/15	43 10/25/14	41 11/04/12	40 11/04/11	40 11/04/10		
Sharon	1999	OCT-DEC	2195	43 10/08/15	42 10/08/14	42 10/08/13	39 10/08/10	34 10/08/09	34 10/08/11		
TRNP - SU (Painted Canyon)	1999	OCT-DEC	2196	48 10/24/17	47 10/24/16	47 10/24/15	44 10/24/14	43 10/24/13	43 10/24/12		

The maximum 1-hour concentration is 48 ppb at TRNP - SU (Painted Canyon) on 10/24/17
The maximum 8-hour concentration is 44 ppb at TRNP - SU (Painted Canyon) on 10/24/14

* The air quality standards for ozone are:
STATE - 120 ppb not to be exceeded more than once per year.

FEDERAL - Fourth highest daily maximum 8-hour averages for a 3-year period not to exceed 80 ppb.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Nitrogen Dioxide (ppb)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MAXIMA 1-HOUR 1ST MM/DD/HH	MAXIMA 1-HOUR 2ND MM/DD/HH	ARITH MEAN	% >MDV
Beulah - North	1999	OCT-DEC	2192	27 10/31/22	23 12/13/15	3.6	83.3
DGC #12	1999	OCT-DEC	2187	108 11/01/02	58 10/07/10	4.6	96.5
DGC #17	1999	OCT-DEC	2166	32 11/16/04	30 11/06/18	3.2	97.0
Dunn Center	1999	OCT-DEC	2189	25 12/16/00	19 12/16/01	1.5	34.0
Fargo NW	1999	OCT-DEC	2064	55 12/10/10	32 10/08/19	7.0	87.6
Hannover	1999	OCT-DEC	2187	25 12/02/19	24 12/02/16	2.7	64.1
Sharon	1999	OCT-DEC	1479 ***	14 11/29/06	12 12/01/18	2.6	72.2
Short Creek - SPM	1999	OCT-DEC	2182	24 12/27/22	22 10/24/23	2.6	61.6

The maximum 1-hour concentration is 108 ppb at DGC #12 on 11/01/02

* The air quality standards are:
STATE - 53 ppb maximum annual arithmetic mean.

FEDERAL - 53 ppb annual arithmetic mean.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable FRM $PM_{2.5}$ Particulates ($\mu g/m^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAXIMA 24-HOUR 1ST MM/DD	2ND MM/DD	3RD MM/DD	ARITH MEAN	#> 65	AM>15	% >MDV
Beulah - North	1999	OCT-DEC	14	2.6	10.1 10/27	7.2 12/02	6.9 11/20	4.9			100.0
Bismarck Residential	1999	OCT-DEC	30	2.5	12.4 11/17	10.4 11/11	10.0 10/27	6.2			100.0
Fargo NW	1999	OCT-DEC	30	2.3	27.4 11/11	24.4 12/02	16.7 11/23	10.1			100.0
Grand Forks - North	1999	OCT-DEC	27	4.9	22.6 11/11	21.1 11/08	20.3 12/02	11.4			100.0
Lignite - SPM	1999	OCT-DEC	13	1.8	8.1 11/08	6.5 11/14	5.5 10/09	4.4			92.3
Sharon	1999	OCT-DEC	13	2.1	16.2 10/27	15.6 12/02	11.0 11/20	8.5			100.0
Short Creek - SPM	1999	OCT-DEC	13	2.1	21.8 10/27	9.6 11/08	7.0 10/09	6.5			100.0

The maximum 24-hour concentration is 27.4 $\mu g/m^3$ at Fargo NW on 11/11

* The ambient air quality standards are:
FEDERAL Standards -
1) 24-hour: 3-year average of 98th percentiles not to exceed 65 $\mu g/m^3$.
2) Annual: 3-year average not to exceed 15$\mu g/m^3$.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable non-FRM $PM_{2.5}$ Particulates ($\mu g/m^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAXIMUM 24-HOUR 1ST MM/DD	2ND MM/DD	3RD MM/DD	ARITH MEAN	#> 50	AM>20	% >MDV
Dickinson Residential	1999	OCT-DEC	15	0.2	20.4 11/08	7.0 10/27	6.1 11/14	4.8			53.3

The maximum 24-hour concentration is 20.4 $\mu g/m^3$ at Dickinson Residential on 11/08

* The ambient air quality standards are:
FEDERAL Standards -
1) 24-hour: 3-year average of 98th percentiles not to exceed 65 $\mu g/m^3$.
2) Annual: 3-year average not to exceed 15$\mu g/m^3$.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM_{10} Particulates ($\mu g/m^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAXIMUM 24-HOUR 1ST MM/DD	2ND MM/DD	3RD MM/DD	ARITH MEAN	#>150	AM>50	% >MDV
Dragswolf	1999	OCT-DEC	14	0.9	12.2 11/08	12.1 10/27	8.6 11/14	5.5			71.4
Fargo NW	1999	OCT-DEC	15	8.5	70.8 11/02	64.9 11/08	48.0 10/27	27.3			100.0
Short Creek - SPM	1999	OCT-DEC	15	6.2	42.2 10/21	39.1 11/08	24.5 10/09	17.3			100.0
White Shield	1999	OCT-DEC	15	2.6	12.2 10/27	12.0 11/08	9.4 11/14	5.6			66.6

The maximum 24-hour concentration is 70.8 $\mu g/m^3$ at Fargo NW on 11/02

* The STATE and FEDERAL air quality standards are:
1) 150 $\mu g/m^3$ maximum averaged over a 24-hour period with no more than one expected exceedance per year.
2) 50 $\mu g/m^3$ expected annual arithmetic mean.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable $PM_{2.5}$ Sulfates ($\mu g/m^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAX 24-HOUR 1ST MM/DD	MAX 24-HOUR 2ND MM/DD	MAX 24-HOUR 3RD MM/DD	ARITH MEAN	#>15.	AM>5.	% >MDV
Dickinson Residential	1999	OCT-DEC	15	0.0	0.7 11/08	0.6 10/03	0.5 11/14	0.3			20.0

The maximum 24-hour concentration is 0.7 $\mu g/m^3$ at Dickinson Residential on 11/08

* No standard is currently in effect.

*** Less than 80% of the possible samples (data) were collected.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : Inhalable PM_{10} Sulfates ($\mu g/m^3$)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAX 24-HOUR 1ST MM/DD	MAX 24-HOUR 2ND MM/DD	MAX 24-HOUR 3RD MM/DD	ARITH MEAN	#>15.	AM>5.	% >MDV
Fargo NW	1999	OCT-DEC	15	0.4	1.9 12/02	1.8 11/20	1.6 11/08	0.9			93.3
Short Creek - SPM	1999	OCT-DEC	15	0.3	1.2 10/09	1.2 10/21	1.0 10/03	0.6			73.3

The maximum 24-hour concentration is 1.9 $\mu g/m^3$ at Fargo NW on 12/02

* No standard is currently in effect.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : $PM_{2.5}$ Sulfate/PM_{25} Total Mass Ratio (Percentage)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAXIMA 1ST MM/DD	MAXIMA 2ND MM/DD	MAXIMA 3RD MM/DD	ARITH MEAN
Dickinson Residential	1999	OCT-NOV	3	3.4	12.5 10/03	8.2 11/14	3.4 11/08	8.0

The maximum 24-hour ratio is 12.5 percent at Dickinson Residential on 10/03

* No standard is currently in effect.

COMPARISON OF AIR QUALITY DATA WITH
THE NORTH DAKOTA AMBIENT AIR QUALITY STANDARDS *

POLLUTANT : PM_{10} Sulfate/PM_{10} Total Mass Ratio (Percentage)

LOCATION	YEAR	SAMPLING PERIOD	NUM OBS	MIN	MAXIMA 1ST MM/DD	MAXIMA 2ND MM/DD	MAXIMA 3RD MM/DD	ARITH MEAN
Fargo NW	1999	OCT-DEC	14	0.7	10.6 12/14	9.0 11/20	5.6 12/26	4.7
Short Creek - SPM	1999	OCT-DEC	11	2.0	15.4 10/03	6.1 12/20	5.3 12/14	4.9

The maximum 24-hour ratio is 15.4 percent at Short Creek - SPM on 10/03

* No standard is currently in effect.

SECTION THREE

EXCEEDANCE LISTINGS

By Site Date Hour

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and $PM_{2.5}$ and PM_{10} ($\mu g/m^3$)

NONE

By Date Hour Site

All Units Are in Parts Per Billion Except Wind Direction (Degrees),
Wind Speed (MPH), CO (PPM), and $PM_{2.5}$ and PM_{10} ($\mu g/m^3$)

NONE